1. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$2^{5x+2} = 343^{2x-3}$$

A. $x \in [2, 3.3]$

B. $x \in [-8.6, -4.9]$

C. $x \in [-2.1, -1.4]$

D. $x \in [-1.5, 2]$

E. There is no Real solution to the equation.

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2. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_3(4x + 6) + 6 = 3$$

A. $x \in [-2.3, -1]$

B. $x \in [-8.7, -5.9]$

C. $x \in [3.5, 7]$

D. $x \in [-5.7, -4.9]$

E. There is no Real solution to the equation.

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3. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x - 7) + 9$$

A. $(-\infty, a), a \in [-8.38, -6.88]$

B. $(a, \infty), a \in [5.99, 7.58]$

C. $(-\infty, a], a \in [-9.2, -7.76]$

D. $[a, \infty), a \in [8.71, 9.45]$

E. $(-\infty, \infty)$

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4. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$3^{-4x-5} = \left(\frac{1}{64}\right)^{2x-2}$$

A. $x \in [1.8, 5.5]$

B. $x \in [-1.3, -0.3]$

C. $x \in [-3.4, -2.2]$

D. $x \in [0.6, 1.7]$

E. There is no Real solution to the equation.

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5. Which of the following intervals describes the Domain of the function below?

$$f(x) = \log_2(x - 7) - 7$$

A. $(-\infty, a], a \in [5, 11]$

B. $(-\infty, a), a \in [-9, -4]$

C. $(a, \infty), a \in [5, 11]$

D. $[a, \infty), a \in [-9, -4]$

E. $(-\infty, \infty)$

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6. Which of the following intervals describes the Range of the function below?

$$f(x) = e^{x-8} - 5$$

A. $(-\infty, a), a \in [2, 6]$

B. $[a, \infty), a \in [-12, 0]$

C. $(a, \infty), a \in [-12, 0]$

D. $(-\infty, a], a \in [2, 6]$

E. $(-\infty, \infty)$

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7. Solve the equation for x and choose the interval that contains the solution (if it exists).

$$\log_2(-4x+5)+6=3$$

A. $x \in [-4.07, -3.47]$

B. $x \in [-0.77, -0.13]$

C. $x \in [0.46, 1.79]$

D. $x \in [-1.26, -0.96]$

E. There is no Real solution to the equation.

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8. Which of the following intervals describes the Domain of the function below?

$$f(x) = e^{x+1} + 4$$

A. $(-\infty, a], a \in [4, 8]$

B. $(-\infty, a), a \in [4, 8]$

C. $(a, \infty), a \in [-4, 1]$

D. $[a, \infty), a \in [-4, 1]$

E. $(-\infty, \infty)$

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9. Solve the equation for x and choose the interval that contains x (if it exists).

$$15 = \sqrt[7]{\frac{12}{e^{6x}}}$$

A. $x \in [-1, -0.4]$

B. $x \in [-19.6, -17.4]$

C. $x \in [-4.5, -2.3]$

D. There is no Real solution to the equation.

E. None of the above.

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10. Solve the equation for x and choose the interval that contains x (if it exists).

$$22 = \ln \sqrt[5]{\frac{28}{e^{3x}}}$$

A. $x \in [-38.56, -30.56]$

B. $x \in [-13.56, -10.56]$

C. $x \in [-8.26, -4.26]$

D. There is no Real solution to the equation.

E. None of the above.